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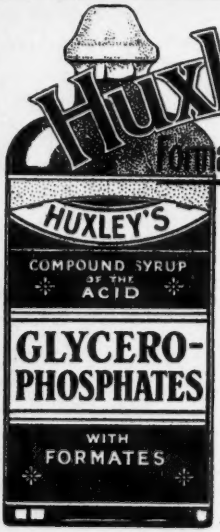

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" Scire est nescire, nisi id me
Scire alius sciret."

DECEMBER, 1920.

MEDICINE AND SURGERY.

The Presidential Address, delivered on October 13th, 1920, at the opening of the Forty-seventh Session of the Bristol Medico-Chirurgical Society.

BY

L. E. V. EVERY-CLAYTON, M.D. Lond.

THIS Society, which has honoured me by electing me its President, is called the Bristol Medico-Chirurgical Society. The name implies that it concerns itself with both of the great branches of special knowledge with which we doctors have to do. I take as the subject of my address, " Medicine and Surgery." The term medicine has at least three meanings. The first finds expression in the vernacular as " a bottle of stuff " ; the second regards medicine as identical with the healing art ; while in the third connotation medicine is recognised in her true place as the part of a whole, the whole being science, which is organised knowledge of Nature, the part medicine being organised knowledge of disease. But what is the meaning of disease ? In the September number of *The Practitioner* Sir Clifford Allbutt tries his by no means 'prentice hand at the framing of a

definition. "A disease," says that acknowledged leader of medicine, "seems to be a series of events, concurrent and consecutive, that tends to recur with fair uniformity." The same remark might, with equal propriety, be made about the weather. Sir Frederick Taylor would have the student know that "a disease is any divergence from health;" while Cohnheim takes us a step farther with this oracle, "Disease, then, is a condition in which the regulative mechanisms of the body, acting in opposition to one or more external influences, are no longer adequate to secure that the various physiological functions shall proceed undisturbed."

The best indication of the right use of the word disease that I have yet met with is that of the late Dr. Sydney Macilwaine, who spent the last years of his life in retirement in Clevedon, and who in the leisure thus afforded him wrote a little book entitled *Medical Revolution*, in which this definition appears: "Disease," says Dr. Macilwaine, "is a conception drawn from the observation of a series of cases presenting symptom-groups of determinate and similar causation." I would have you note that "a conception," an action of the mind, not a substance nor an entity. This definition of disease is positive, not negative; moreover, it is clear, practical, and helpful. A symptom-group, or syndrome as we sometimes like to call it, gains recognition by repeated clinical observation. Presently, clinical or experimental observation, *post-mortem* findings, and the bacteriological laboratory—one or other of these—gives us the cause. The whole process repeats itself again and again, and a conception is formed of symptom-group plus constant cause, which is a disease.

The next word of most frequent use in our vocabulary is "diagnosis," and here again I find myself unable to improve upon the connotation which Dr. Macilwaine ascribes to it. Diagnosis finds its proper sphere of action in

"the correlation of cause and effect in the individual patient." A case may present the well-known symptom-complex of intense headache, giddiness and vomiting, dimness of sight, and epileptiform convulsions. It is only when we are able to ascribe these signs and symptoms to the presence of a tumour of the brain that we have made a diagnosis and named a disease.

At the Cambridge meeting of the British Medical Association the subject of Medical Education took a prominent place. Each professor of a subject constituted himself a special pleader, and succeeded admirably in making out a case for the inclusion, as the case might be, of Chemistry, Physics, Biology, Anatomy, in the medical curriculum. The idea of dividing up scientific subjects into water-tight compartments is, to my thinking, fundamentally wrong, and I wish to protest here emphatically against it. All science is one. The unity of science must be an article in our creed. How can it be otherwise if we grant the truth of the definition that science is organised knowledge of Nature, *i.e.* the study and investigation of the structure, substance, and inter-relation of that natural universe in which man finds himself, and of which he is a part? It is cosmos, not chaos, with which we have to do, and it is the existence of design, order and law which makes science possible. No science stands entirely alone, or can afford to ignore, as with a sort of social superiority, the existence of other sciences, and there is no science in relation to which medicine can say, "I have no need of you." I do not think we can abbreviate the curriculum by discarding subjects, but by modification and limitation in the way those subjects are taught. Rather than abbreviate the curriculum, I would add to the list of subjects that of Medical History, the story of knowledge and its acquirement. Indeed, it were well if the various branches of science were expounded in a more historical manner. I

well remember, in my own student days, how greatly the difficulty of understanding the then accepted theory of the coagulation of the blood was increased by not knowing how the present facts, or supposed facts, had been arrived at.

Sir James Mackenzie, in his new venture at St. Andrew's, has focused attention on our need of still more detailed and still more accurate collecting and sifting of the facts gained by clinical observation. It is in this exact, precise, and complete observation of symptoms and signs, and in the correlation of these with morbidity of structure or function, or both, that the general practitioner can find his true opportunity of contributing to the sum-total of our knowledge. It should be a golden rule of practice always to try to find an answer to the question, What is the meaning of each and every sign and symptom which may be present in any given case? and to make particular note of any to which the answer is not immediately forthcoming. It is impossible, with the uncertainty of the calls upon his time, that the busy practitioner should do research work along laboratory lines, but in the field of precise clinical observation he will always find work to his hand, and I entirely agree with Dr. Lewis when he points out (in his recent lecture on the relation of physiology to medicine) that the main function of cumbrous, elaborate, and expensive apparatus is to establish facts which must thereafter be correlated with clinical practice.

We have already made the acquaintance of medicine as mistress of the healing art, and medicine as the science of disease; we must not entirely forget medicine in her more humble rôle as the actual substance used in the treatment of the sick. Her name is then Materia Medica, and I think she has fallen upon evil days. I sometimes wonder whether the profession is aware how much it is drifting into the

hands of the big commercial houses and manufacturing chemists, both in the matter of its therapeutics, its choice of remedies, and in the matter of a somewhat hazy knowledge of what those remedies are and can do. Practitioners must regain their lost control in this business, and see to it that all drugs come into their hands with trustworthy scientific credentials.

Sir George Newman, in his extremely able and exhaustive memorandum, has approached the vital question of preventive medicine from the point of view of the administrator and sociologist. The aspect of preventive medicine which presents itself to the general practitioner is somewhat different, and deserves to be emphasised. Preventive medicine as applied to the social body is one thing, and as applied to the individual body is another. It is this latter which in all his work should be the guiding principle of the general practitioner. Furthermore, one must distinguish between absolute prevention and relative prevention. The practical applications of the latter will be found to be the more numerous. By absolute prevention is to be understood the anticipating and turning aside of some particular disease. From the definition already given of the meaning of disease it will be realised how absolute is the dependence of prevention upon knowledge of causation. The practitioner cannot give advice which will lead to a patient avoiding an attack of psoriasis, urticaria, asthma, migraine, rheumatoid arthritis, or glaucoma, unless he is aware of the cause of those conditions. On the other hand, dimness of sight due to tobacco, alcoholic cirrhosis of the liver, and all the disastrous and far-reaching results of venereal infection, can be anticipated and turned aside. Relative prevention will present itself as a practical problem in the daily work of every physician. In the contemplation of established, incurable, and even fatal disease, the question must arise in every thoughtful

mind, Was there not once a stage in this process when something might have been done? was there not a time when this patient stood at the parting of the ways? and was there no sign-post to indicate the right road? The practitioner who seeks to do his work along preventive lines must ever bear in mind the words of the poet-philosopher: "Oh, small beginnings, ye are great and strong."

I have already dwelt on the impossibility of coping with the problem of prevention until we have first settled the question of causation. Etiology, the study of causes, should be, in accordance with the definition already given, a province of diagnosis. The only true diagnosis, it will be remembered, is the correlation of cause and effect in the individual patient. It may be useful to have in compendium form the presently recognised possible causes of disease. They may be classified under the following seven headings:—

1. First comes trauma. This will always be with us, so that we shall still have the need of the surgeon, even when all the other causes of ill-health have been "prevented" out of existence. For trauma, bringing in its train bruises and contusions, strains and sprains, wounds and all their infections, fractures, burns and scalds, frostbite and corrosive poisons, will provide work to his hand.

2. Next on the list is poisoning, including all the intoxications, whether of alcohol in "the cup that clears to-day of present ills and future fears" or of opium and its congeners in "the drowsy syrups" that cloud the mind and paralyse the body.

3. Parasitic causes of disease are both very numerous and of great variety, and include all the infections—typhoid fever, pneumonia, septicæmia, etc.

4. Heredity determines that, apart from all the accidents and incidents of environment, the individual comes into this world with a certain physical and mental

endowment—it may be of but a few cubits, or of but one talent, so that these feeble ones are at best, and of necessity, continually on the border-line of disease.

5. Metabolic. Such conditions as gout and diabetes, and the disorders of the endocrine glands will find themselves in this group, at any rate provisionally. I say "provisionally" because we really need to know, in hyper-thyroidism for example, what is the *causa causans* of that condition.

6. Neoplastic causes represent all the new growths, both simple and malign. Further research may show that these are in part parasitic, in part metabolic; that is to say, due to invading microscopic enemies, or to a social revolution in the republic of body-cells.

7. Moral causes of disease make the seventh and last group. Here we trespass upon the sacred cult of psycho-analysis, for the brunt of action of moral causes must of necessity fall upon the higher functions of the nervous system. Our knowledge of mental processes and mental disease seems to be advancing along two parallel lines, which may be produced indefinitely but will never meet. The older method, and one which is in danger of being over-shadowed and overlooked, is that of working out the connection between psychosis and neurosis, the association, that is, of mental activity with nervous change, and the identification of function with certain definite areas of brain-tissue or groups of nerve-cells. The newer method of psycho-analysis endeavours to unravel the mental complexes without reference to territorial limitations. Its greatest danger at the present moment is the dominance of the sex-idea, which assumes that a man's whole nature revolves on a pivot of sexual feeling, and that the dissatisfactions and repressions of erotic experience account for all the psychic morbidities. Some investigators seem to be threatened with submersion in this *cloaca maxima* of sexual obsession.

Our knowledge of the cause and prevention of the mental and moral group of diseases seems somewhat to lag behind. It will not advance until we have regained the tradition, handed down to us from the Greek Ἰατρός, of the priestly as well as the healing function of the physician, and until we have learned to see and deal with man's nature in its perfect whole of body, soul, and spirit.

But little time remains to me in which to say anything of surgery, or cheirurgery, to use the older term which is preserved, fossilised as it were in the rock of our Society—a term which carries with it the essential idea of handicraft. But craftsmanship is not the whole of surgery, and it is not until, as in the name of our Society, medicine and cheirurgery are conjoined in matrimony that the latter can be fruitful. The surgeon must be a physician first, one who studies physics, that is Nature; but the physician need not be a surgeon. He may stop short of the exercise of that particular form of the craft. It is the study of the processes of disease which is common ground with both. At the marvellous advances which surgery has made, the extraordinary developments of operative technique, and the new fields in which she has won victories, one can only stand and look on with a sort of awed wonder. But these very advances carry with them an insidious danger to surgeons themselves. The ease and impunity with which even major operations can be undertaken tend to displace from their rightful position the less showy and more laborious methods of clinical investigation. Why waste time over inspection, palpation, mensuration, when it is so much easier to cut down and look? If the first incision is in the wrong place he just makes another, and they both heal by first intention. The instruments of precision, too, threaten to oust those other instruments, by no means unprecise, with which Nature has endowed us. "The eye first and most, the hand next and

less, the tongue last and least." The marvellous accuracy of the older generation of surgeons in the employment of the unaided senses fills one with both wonder and envy. The eyes of a man like Sir Astley Cooper, for instance, seem to have been like an X-ray apparatus in miniature. No surgeon can pursue his craft with ability and success without some knowledge of anatomy, but that knowledge need not be of the exceedingly minute and detailed character which is such a feature of latter-day anatomical teaching. Indeed, anatomical teaching of a certain sort is a positive hindrance to the surgeon, who requires to be acquainted only with the principal landmarks of the country through which he is travelling, and he can pass by unnoticed the leaves on the hedgerows. Let the anatomist of the future, then, teach his students with less attention to detail, and more with regard to broad surgical principles.

Knowledge of First Aid comes painfully later still to embarrass the budding practitioner, who has only been taught how to deal with surgical emergencies when surrounded with all the resources and apparatus of a well-equipped institution.

In conclusion, lest any be discouraged by the contemplation of the long gap which still separates us from perfect knowledge and perfect skill, let us remember that wise and true saying: "La Médécine guérit quelquefois, soulage souvent, console toujours."

THE DIAGNOSIS OF TORSION OF THE GREAT OMENTUM, ILLUSTRATED BY TWO CASE-HISTORIES.

BY

JAMES SWAIN, C.B., M.S., M.D. Lond., F.R.C.S.,

Emeritus Professor of Surgery in the University of Bristol; Surgeon to the Bristol Royal Infirmary.

IN acute abdominal troubles a positive diagnosis is generally admitted to be difficult, and the list of possible causes of the " acute abdomen " is a long one.

The differentiation of Henoch's purpura and intussusception, acute pancreatitis or enterospasm and organic intestinal obstruction, acute tuberculous peritonitis and appendicitis have only to be mentioned to emphasise the snares that beset the path of the surgeon in his endeavour to form an accurate opinion of the etiology of a particular case.

The difficulty of diagnosis is due to the fact that the early symptoms of acute abdominal trouble are generally the same whatever the cause may be. In every case the first symptoms are produced, not by the distinctive characters of the lesion, but by the effect of the lesion on the peritoneal nerves, and usually made evident by a group of symptoms —pain, vomiting and more or less collapse—known as " peritonism " (Treves). Hence the similarity of symptoms at the commencement of the illness and hence the confusion.

It is because of the infrequency of torsion of the great omentum and the difficulty of its diagnosis that the cases described below are thought worthy of publication.

Torsion of the omentum is so rare that Prescott Hedley[1] was only able to find references to ninety-three cases;

[1] *Brit. M. J.*, 1911, ii. 1,246.

and of seventy-three cases in which he obtained details from the writings of Corner and Pinches, Lejars, Picquet and others, there were only thirteen in which there was no history of a hernia, which was present in almost all the other sixty cases at the time of operation.

Case 1.—Mr. N., æt. 58, was seized with sharp pain in the region of the gall-bladder on April 24th. On the following day there was great tenderness and he was slightly jaundiced. By April 29th the pain had become rather more general and appeared to be associated with flatulence. There was no sickness. The bowels had acted freely after purgation and there was no constipation. The gall-bladder was slightly distended, but the presence of muscle guarding made examination difficult. There was no tenderness in the appendix region. On April 25th the temperature was 102°, came down to normal the following day, and rose to 100° on May 3rd. On this date a large "lump" was felt in the neighbourhood of the gall-bladder. On opening the abdomen a dark red, friable mass with yellowish spots was seen adherent to the parietes, liver and adjacent intestines. On detaching this mass it was found to be a matted portion of omentum near the hepatic flexure. This was tied off, the piece removed being about 6″ by 3″ by 2″. The gall-bladder was distended, but no stones were found. The abdomen was closed and the patient made an uninterrupted recovery. The pathological report on the tissue removed was as follows: "This section shows a very congested omentum. There are no foci of tuberculosis, nor any collection of tumour cells. Sections taken from different parts have been examined for various micro-organisms, but without finding any, either Gram-positive or negative. It is possible only to diagnose it as a condition of active hyperæmia, probably occasioned by some adjacent inflammatory process."

Case 2.—Mrs. H., æt. 25, had a feeling of general abdominal discomfort, beginning on July 13th. Later there was severe pain, at first near the umbilicus and afterwards in the right iliac fossa with tenderness and muscle guarding. On July 16th the temperature was 102°, on July 18th it was 101°, and on July 19th (when I first saw her) it was 99°. The bowels had acted without difficulty throughout the illness and there was no vomiting. There was no history of any previous attack of a similar character. A definite tender lump about the size of a large walnut could be felt just above a line joining the right anterior superior iliac spine with the umbilicus. An incision over the swelling showed the mass to consist of matted

omentum—dark red in colour with yellowish spots—just below the right end of the transverse colon. The affected portion was tied off and removed. The appendix was quite distinct from the swelling; it was, however, removed for safety's sake, but it showed no definite evidence of appendicitis. Recovery was uninterrupted.

The pathological report on the tissue removed was as follows: "The sections show the presence of wide-spread active hyperæmia. I cannot find the signs of actual suppuration in the shape of polynuclear exudate or bacteria, but there is a slight amount of perivascular mononuclear infiltration. There is not any evidence of malignant change or infiltration."

Whether it is correct to describe these cases as "torsion" of the omentum I am not sure, as although the affected omentum was matted, there was no evidence of actual twisting.

Clinically the symptoms were largely of an inflammatory character. The first case resembled an attack of cholecystitis and the second case resembled appendicitis. Probably some local peritonitis was commencing at the time of operation, but it seems clear from the microscopic appearances that the primary changes—as shown by the presence of hyperæmia with an absence of bacteria and polynuclear leucocytes—were of a simple vascular nature and not those of inflammation. Such changes could easily be produced by a slight degree of torsion.

In the present state of our knowledge it seems probable that such cases are not likely to be definitely diagnosed before operation; but it is worth bearing in mind that in both of my cases the symptoms developed somewhat slowly, vomiting was absent throughout, and there was no interference with the action of the bowels.

Operative procedure is necessary, and in this we have one of the many examples of the fact that the treatment of acute abdominal troubles has advanced beyond our powers of diagnosis.

THE CLINICAL SIGNIFICANCE OF ADSORPTION PHENOMENA.

BY

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THE object of the present paper is to show that many of the reactions which take place in the body during disease exhibit characteristics which are closely parallel to the phenomena which have been grouped together under the designation of adsorption or sorption.

The phenomena of adsorption have given rise to much discussion during the past century, and a vast amount of research has been carried out with the object of throwing light upon the mechanisms involved.

A few general remarks will first be made with reference to these phenomena before entering into a more specialised discussion, and as a typical example of adsorption may be cited the action of various types of carbon upon solutions of iodine in different solvents. Under favourable conditions the colour of the iodine solution diminishes in intensity immediately the solid carbon is brought into contact with this solution.

Various theories have been brought forward as to the nature of this action. Freundlich,[1] on the one hand, regarded the phenomenon as exclusively a condensation on the surface, whereas Travers[2] considered that adsorption consists exclusively of a more or less complete "absorption" into the interior of the solid.

A series of experiments on adsorption was carried out by the writer some years ago,[3] and will be briefly referred to here. The investigation consisted of a long series of

experiments demonstrating the action of various types of carbon on standard solutions of iodine in different solvents.

It was clearly shown that " adsorption " may be accompanied by " absorption," and that in addition to a rapid condensation on the surface there is a slow diffusion inwards which goes on for long periods of time.*

At the time of these experiments certain of the tubes containing carbon, solvent, and iodine hermetically sealed up were left over, and various intervening matters prevented the work being continued till recently, when the tubes were opened and their contents examined under the supervision of Professor James W. McBain.[5]

The following table well illustrates the gradually increasing amounts of iodine taken up by the carbon during the prolonged period of time.

" a " is the original amount of iodine (1.2685 gm.) in 100 c.c. of the solvent ; " a—x " is the number of grammes of iodine left in solution after shaking with the carbon ; " m " is the weight of carbon (2 gm.) shaken with 100 c.c. of solution ; " x /m " therefore indicates the number of grammes of iodine sorbed by one gramme of carbon.

Sorption by Animal Carbon of Iodine dissolved in Toluene.

Time	x /m.	a—x
5 minutes	0.229	0.809
15 ,,	0.237	0.793
30 ,,	0.245	0.777
1 hour	0.265	0.736
2 hours	0.293	0.682
5 ,,	0.299	0.669
24 ,,	0.315	0.637
5 days	0.327	0.613
24 ,,	0.379	0.509
11 years	0.509	0.250

* McBain[4] has introduced the term " sorption " as a generic and non-hypothetical term for the two phenomena here mentioned, which frequently occur together.

After eleven years there was only the faintest trace of hydriodic acid present in the tube, showing that the diminution in concentration of the iodine solution cannot be ascribed to chemical action between solvent and solute.

The next table shows similar results in the case of iodine dissolved in benzene :—

Time.	x/m.	a—x.
3 days	0.328	0.611
10 „	0.339	0.589
24 „	0.386	0.495
11 years	0.561	0.146

Another important result of this research was to demonstrate conclusively that adsorption is a specific action depending here on the nature of the carbon. This is shown by the following table :—

2 grammes Carbon to 100 *c.c. solution of Iodine in Toluene.*

	Time, 3 *days.*	x/m.
Cocoanut Carbon ..	.. .. ..	0.062
Sugar Carbon ..	.. .. ..	0.299
Animal Carbon ..	.. .. ..	0.329

It is especially important to recognise two essential differences between chemical reactions and adsorption phenomena. In chemical reactions the position of an equilibrium set up is directly proportional to the concentrations of the reacting substances, and in dilute solution reaction becomes slower, whereas in the case of adsorption a nearly quantitative reaction occurs with very low concentrations, and such quantitative adsorption is instantaneous.

The result of these two factors is that a substance circulating in extreme dilution might be quantitatively adsorbed by specialised cells coming in contact with the circulating fluid, and be deposited on these cells in a state of

comparatively high concentration. This is of special significance when it is remembered that a layer of adsorbed material only one molecule deep may alter all the properties of the solid so covered.[6]

Experience of that vast field of chemical reaction known as catalysis has demonstrated that these adsorption layers are the seat of enormously enhanced chemical reactivity. Thus in many important industrial reactions, such as the manufacture of sulphuric acid from sulphur dioxide and oxygen by the contact process, it has been shown that the reaction, otherwise perhaps undetectable, is instantaneous on the surface of the proper catalyst.

This is doubtless due to the very high local concentration of the reacting substances, which at the same time are fully exposed to the effects of the chemical and residual affinity of the surrounding material.

Such considerations as these, coupled with the results of the adsorption experiments with iodine, have led the writer to believe that there is a connection between adsorption phenomena and certain pathological processes. The work of Moore and Roaf[7] gives support to this belief, since these workers made laboratory experiments with anæsthetics upon brain tissue, etc., and concluded "that anæsthetics form unstable compounds or aggregates with the proteids of the tissue cells, and that anæsthesia is due to a paralysis of the chemical activities of the protoplasm as a result of the formation of such aggregations."

The subject is extremely complex, and as the toxic substances which will be referred to have not as yet been isolated in a pure condition, satisfactory experiments with them have been impossible up to the present. It must, however, be pointed out in such cases that unless investigators commence their research with a working hypothesis, progress must of necessity be extremely slow. It is obvious that

experiments *in vitro* can never replace practical experiments with animals or clinical observations, but can only be used to support evidence obtained from other sources.

We are undoubtedly justified in carrying out laboratory experiments with substances which are readily adsorbed, and which can be estimated quantitatively with great accuracy, and in endeavouring to draw conclusions from such results which support or controvert various theories with regard to the mechanism of pharmacological action.

For this reason the experiments with carbon and iodine above described would appear to be of great value. In the writer's opinion there is clinical evidence to show that at any rate one of the earlier factors concerned in the action of certain toxins is adsorptive action. It would not be profitable at this stage of our knowledge to mention any considerable number of such probable cases, but a few will be noted. In the first place, those who have clinical experience with children are well aware of the alarming symptoms which may rapidly follow intestinal stasis, namely pain, drowsiness even approaching coma, and pyrexia or hyperpyrexia. In the majority of cases the administration of a mercurial purge modifies all the symptoms within a few hours. The symptoms point to a temporary alteration in the function of certain cerebral cells, and a feasible explanation is that this is due to the action of an alimentary toxin. That this toxin is chemically combined with the nervous tissue seems highly improbable, since the symptoms are so rapidly modified by drugs which presumably act by indirectly reducing the " active mass " and accumulation of the toxin by cutting off its source of supply, *i.e.* by bringing about an evacuation of decomposing material from the bowel.

That the toxin is adsorbed by the nervous tissue during the active period is a far more tenable theory than that of chemical action. In the days before the science of surgery

had reached its present stage lardaceous disease or amyloid degeneration was far more common than at present. Here we presumably have small quantities of a toxin slowly but progressively poured out into the tissues, finally producing definite chemical changes in the cell units. By active treatment these degenerations may be prevented in the early stages, quite probably because purely chemical change is preceded by adsorption phenomena, at which stage appropriate treatment has a chance of removing the toxin and stopping its production. Still more striking is the case of the late cerebral lesions of syphilis. Here it may be assumed that the toxin thrown out by the Treponema pallidum in minute quantities is adsorbed by the cerebral tissues, and if not removed during early stages finally brings about histological changes in the cells.

There is one other type of disease in which the writer ventures to suggest that the phenomena of adsorption may be the main cause of the observed symptoms, namely the so-called " functional " nervous diseases.

At the present time the classification of diseases into " functional " and " organic " is becoming more and more unsatisfactory, as it is quite obvious that the physical properties of the constituent cells of the body may be profoundly modified without giving rise to any demonstrable histological change, the only evidence of such modification of properties being an observable disturbance in function. Such a modification of the physical properties of cells could certainly be brought about by an adsorption of toxins.

The fact that adsorption is a specific action appears to be of great importance if we assume that certain drugs or toxins undergo adsorption as previously stated by specialised tissues.

It is further suggested here that the two factors observed in the case of adsorption of iodine by carbon may also be present in the case of toxin action. A simple " adsorption "

or surface condensation would explain the rapid action of such toxins as those generated in the alimentary canal. If not removed these " adsorbed " substances would doubtless be slowly and progressively " absorbed," finally bringing about dire results, as in the case of lardaceous disease and syphilis previously referred to.

To summarise, it is here suggested that the action of toxins may take place in several stages, the first stage consisting of a condensation on the surface of specialised cells by adsorptive action. In this concentrated condition the toxins would exert a profound influence on the activities of the cells, and if not removed the second stage of diffusion inwards would be attained, accompanied or succeeded by definite chemical reactions bringing about histological changes.

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TUBERCULOSIS AND CONSUMPTION IN RELATION TO PUBLIC HEALTH.

BY

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TUBERCULOSIS in its various forms is the commonest of all the important diseases of civilised lands. It accounts for some 50,000 deaths a year in England and Wales; that is to say, about one death in every ten is due to tuberculosis.

The popular idea is that a young adult who develops pulmonary consumption has of necessity *recently* been infected by a relative, a companion, or a fellow-workman, just as happens in the case of scarlet fever, and much of the machinery in connection with " Sanatorium Benefit " seems to be frankly based on this assumption.

In considering the question of prevention it must be remembered that in the majority of civilised communities tuberculosis is as widely distributed and as constantly prevalent as the " common cold." Despite the fact that the new-born infant is practically always free from infection, hardly anyone who has attained the age of 14 has escaped.

Distinction between Tuberculisation and Consumption.—The distinguishing peculiarity about childhood infection is that as a general rule between the ages of 3 and 12 it does not manifest itself as consumption of the lungs, but may consist in a comparatively trivial affection of certain glands, prone to heal without further trouble, or in other cases may lead to more serious bone or joint or abdominal trouble, still curable if properly and early taken in hand. These *non-pulmonary* forms of tuberculosis, though they may prove fatal, are far less so than either the acute forms of generalised tuberculosis, which are terribly fatal during the first two years of life, or than the chronic pulmonary forms (consumption) which after the age of puberty cause most of the deaths from tuberculosis.

An important point about the practically universal childhood infection is that the severity of the case appears to depend, other things being equal, largely upon the " dose " received. If the dose is quite small (minimal dose) the disease is often so benign that it passes unnoticed, but it may end in a latent tuberculosis (the bacilli still alive but enclosed) of one or more glands. This bacillary infection

with tuberculosis (tuberculisation), not "consumption," is compatible in the great majority of subjects with every appearance of health. This difference between "tuberculisation" and "consumption" is very important to bear in mind.

"Immunity" in Tuberculosis.—Childhood infection may confer a relative not absolute form of immunity. It affords fairly complete protection against acute, rapidly fatal forms in later life, but not complete protection against slower, chronic forms, which, while the patient is often well capable of holding his own, are yet sufficiently fatal; and these chronic patients are long standing and potent disseminators of infection.

These points already suggest very forcibly that it is too late if we only concentrate on even the earliest manifestations of chronic pulmonary phthisis (consumption); infection of another sort has already occurred years before. We must devote equal care to curing the slighter and benign manifestations in childhood in the hope that the maximum of possible "immunity" may be attained upon clinical recovery. Moreover, adults as well as children must be protected against exposure to "massive" infection, and against all depressing and predisposing causes, and if affected, then treatment with a view to cure must be taken in hand early. The anti-tuberculosis crusade must therefore be vigorously prosecuted against tuberculosis at all ages.

Sources of Infection.—The infection of tuberculosis may be received from other people, or from the cow through its milk. Generally speaking, the human source of infection is four times as important, even towards children, while chronic pulmonary phthisis (consumption) is practically always due to infection of human source. A large share of human tuberculosis is acquired during childhood from relatives in the intimate conditions of family life, the disease thus

acquired not manifesting itself clinically (as consumption) for ten or twenty years afterwards, therein resembling the tertiary manifestations, after long latency, of syphilis.

Influence of "Insanitary" Conditions.—While it is correct to look upon overcrowding in cities or in rooms, bad ventilation, absence of sunlight, underfeeding, mental anxiety, and "insanitary" conditions or insanitary habits generally as powerful predisposing causes helping towards the wide diffusion and persistence of the disease, the essential factors are the persons or animals actually suffering, who distribute the infective germs. "Family" infection is a far greater danger, and leads to greater risk of "massive" infection, than does "bovine" infection. But although tuberculosis derived from the cow appears to be responsible for only 6 per cent. of the total deaths from tuberculosis, yet as this means 3,000 deaths in a year out of a total of some 50,000, it is of distinct importance; and it is inadmissible to contend that as bovine infection often leads to benign attacks, which appear to be protective, this source of risk may be neglected.

The fallacy of the contention consists in the fact that there is no control over the dosage received from cows' milk, and the dose, if massive, may readily lead to serious and prolonged illness. Every reasonable precaution should be taken to secure a milk supply as free from tubercle as possible, though even if this source of infection were entirely removed the far larger "human" risk still remains.

It is somewhat the fashion to say "tuberculosis is a question of housing." This seems to be an exaggeration, and hardly a useful one, as it tends to confusion between actual and predisposing causes, and distracts attention from the plain duty of exhausting or rendering harmless the actual sources of infection.

"No child will be found, were it condemned to live

in the most unhealthy hovel under the most terrible conditions of want, nor any calf in the most insalubrious stable—which will contract tuberculosis, if in that hovel or in that stable virulent germs are not introduced, either intermittently or continually, by men or animals who are sick" with tubercle (Calmette).

Similarly alcoholism, poverty, malnutrition, unhealthy dwellings will not make a man tuberculous where the bacillus does not exist. But once the bacillus is present, these conditions paralyse or thwart the efforts of the natural defensive weapons, that is to say, act as most powerful predisposing causes. Therefore drastic action to remove such conditions, and especially to check overcrowding, and to secure adequate provision of fresh air, forms a necessary background to any scheme for the control of tuberculosis.

The Decline in Consumption.—The remarkable decline in the mortality recorded from "consumption" from 1840 to the end of the century, during which time the figures fell from 475 to 130, can hardly be due to any special measures taken, since it began and continued before any administrative action was commenced towards its control, and while administrative action has increased, the rate of decline shows signs of diminishing. The bills of mortality for London over a period of 200 years suggest that it is probably part of a declining wave of long duration, assisted possibly by improved economic conditions during the Victorian period; but this wave may show a future tendency to rise.

Natural Selection in Disease.—Independently of this decline, however, there is evidence that civilised communities, amongst whom the disease is constantly present, do enjoy a comparative immunity when compared with "virgin" populations (*i.e.* populations amongst whom the disease is newly introduced) as evidenced by a less mortality. Individuals vary in resistance to certain diseases, and under

the constant weeding-out by the ever-present disease of the less resistant, though absolute immunity is not secured, *the mean resistance of a race towards the particular disease is raised.* This is true of malaria in West Africa, and much the same result seems to have occurred amongst civilisations where tubercle is endemic. For example, in 1917–18 the average strength of the British troops (from a country where the disease is endemic) in France was over a million and a half, but there were only 2,881 cases of tuberculosis, with 165 deaths, or about 1 death in 9,000. In the same period the average strength of Cape Boys and Kaffirs (from a country free from the disease) was only about 11,000, but the deaths from tuberculosis numbered 182, or about 16 deaths in every 1,000. The Fijian labour unit had to be repatriated on account of tuberculosis, and in 1916 the incidence of tuberculosis among the Indian divisions in France was 27.4 per 1,000, as compared with 1.1 per 1,000 British troops.

It is highly probable that high or low powers of resistance are transmitted by inheritance, and this point deserves more serious attention than it has hitherto received, in particular the mating of highly susceptible couples should in every way be discouraged. Heredity is important in the whole field of etiology, and becomes specially important in phthisis, because that disease is one of the largest factors of the death rate.*

Protection due to Minimal Attacks.—The second kind of racial immunity due to the continued and universal presence

* Dr. Paul A. Lewis, Henry Phipps Institute, Philadelphia, U.S.A.: An initial difficulty in experimenting was the variable resistance to tuberculosis encountered in different families of the same animal species. In order to achieve a uniform standard he carried out experiments on guinea pigs. In the course of these it had been determined that variations in susceptibility to infection depended on the factor of heredity more than on any other single factor. Whereas the ancestry of the guinea pigs counted for 30 per cent. of the variation, the weight and rate of growth counted for no more than 7–10 per cent. of this variation.

of the disease is not dependent on heredity, but is due to minimal cured or latent infections during the less susceptible childhood period. It is difficult to explain otherwise the terrible mortality where tuberculosis is introduced into a " virgin " population.

An example of this is seen in the 10 per cent. of total deaths from tuberculosis in England, compared with the 28 per cent. which followed its introduction amongst the Red Indians.

The Risk to Infancy.—Available evidence tends to show that infection in infancy is usually accomplished within the family. Tuberculosis is extremely rare in infants who live in homes where there is no tuberculous member, whatever the condition of the home.

Though the child will probably be born tubercle-free, there is great risk to infants suckled by a phthisical mother, especially if in an advanced stage. The infant is apparently not infected through the mother's milk, but by the bacilli she scatters in coughing or speaking. Similarly other tuberculous persons coming into contact with a nursling are a source of danger.

Up to the present public attention has been mainly focused on sanatorium benefit, of which the outstanding features are as follows :—

(*a*) Segregation of so-called *early cases* of pulmonary phthisis (consumption) in sanatoria.

(*b*) Segregation of advanced or " late " cases in hospital (acute cases).

(*c*) Tuberculosis dispensary or out-patient work, with searching out and supervision of contacts.

(*d*) Provision for domiciliary or home treatment.

The would-be best friends of the sanatorium, claiming impossible results, have unwittingly been its worst enemies, for there has been no marked failure within the limits

of the possible influence of such methods, which have in fact been only directed against certain late manifestations of a long-standing infection. Many years of added useful life may have been obtained for a large number of individuals who respond to treatment, and for whom suitable after-care or suitable employment can be found, though much remains to be secured in this direction.

The sanatorium and its after-care complement, useful and necessary as they are, form but a small part of a complete scheme for the control of tuberculosis, which is a far wider question than merely dealing with chronic pulmonary phthisis (consumption).

Increasing attention, interrupted by the War, is now properly being given to searching out and making adequate provision for the non-pulmonary tuberculous affections of children of school age, and this necessary provision comprises :—

1. Open-air schools.

2. Sanatoria for " pre-tuberculous " cases in children (glandular cases, etc.).

3. Provision for dealing with the more serious cases of surgical tuberculosis, bone and joint affections and spinal cases in special hospitals.

Not only are these conditions more curable, and up to a point *probably protective in after-life*, but if neglected may result in serious and crippling deformity.

There is every need, therefore, to push forward this important work, not in place of sanatoria for consumption, but as the necessary and indispensable antecedent.

SUMMARY.

(*a*) Tuberculosis is so universally present, and the opportunities for infection so frequent in most civilised communities, that, though born free, practically no one escapes infection of some sort by the tubercle bacillus. By the age of 14 over 80 per cent. are infected.

(*b*) Infection by the tubercle bacillus does not always result in obvious illness. Under 3 years of age infection will probably result in acute and fatal illness. Between 3 and 12 infection, if in moderate dose, will probably result in mild glandular affection, readily curable, and acting as some protection against further infection; if the dose is large, however, serious bone or joint trouble may result. If not cured to sterilisation, the patient becomes a "carrier," liable to re-infect himself.

(*c*) Consumption (chronic pulmonary phthisis), which is rare at school ages, is met with more frequently in later life. It is a chronic form of lung disease, milder than acute tuberculosis, and in most instances appears to be due, not to recent infection, but to a re-awakening of previous childhood infection which was not absolutely cured. It only occurs in persons previously "immunised." If such a patient had not previously been partly protected by childhood infection an acute, rapidly-fatal tuberculosis would probably occur, and in unprotected populations infection results in very heavy mortality from rapid generalised tuberculosis.

(*d*) Of the sources of infection the "human" source is by far the most dangerous, but infection from the cow, though generally milder, is responsible for some amount of disease; and as the "dosage" is not under control (except through the uncertain safeguard of "mixed" milk from large herds, most of which are presumably healthy), safeguards are necessary.

(*e*) Infants are peculiarly susceptible to "home" infection where parents or relatives are affected. "Sanitary conditions" do not exert their full depressing influence until past middle age.

(*f*) Consumptives do not appear to be a great source of danger to other adults, who are probably to some extent protected, but they are a constant danger to and the chief source of infection towards children in the home circle. While it may be admitted that early slight infection may produce resistant individuals, such persons require guarding against "massive" infection, and against depressing pre-disposing causes, lest they reinfect themselves.

The necessary Institutional Provision in a Scheme for dealing with Tuberculosis.—The Health Committee of the Corporation have been considering ways and means by which their sanatorium and hospital provision for "consumption" might be supplemented by the necessary antecedent provision of beds for the non-pulmonary forms of tuberculosis in childhood. The result of their deliberations has been the adoption of a scheme by the City Council, in which the major

part of the provision is local, but certain special treatment for surgical cases for which no sufficient local facilities were immediately available will be obtained at Lord Mayor Treloar's Cripples' Home at Alton.

A comprehensive scheme for tuberculosis involves the following considerations :—

A. Preliminary Considerations.

1. The question of the health of parents is distinctly important, and the mating of definite consumptives should be discouraged in every way.
2. Consumptive mothers should not suckle their infants, and other consumptives in the home or family are a special danger to infants, who, though born free from tuberculosis, are most ready to contract it in fatal form.

B. Institutional Provision.

	Bristol Sanatoria and Hospital provision.	
Non-Pulmonary Tuberculosis.	Beds in being.	Total Beds Approved.
3. Provision for " pre-tuberculous " conditions in children, comprising open-air schools and special sanatoria (malnutrition, glandular affections)	36	100
4. Provision in special hospitals for bone and joint affections (surgical tuberculosis) in children.. ..	—	60
5. Provision for surgical aid in adult cases	—	6
6. Provision for other non-pulmonary forms of tuberculosis (genito-urinary cases, etc.)	—	12
Pulmonary Tuberculosis.		
7. Sanatoria for " early " cases ..	103	110
8. Hospitals for " late " cases ..	53	93
9. Dispensaries (Portland Square and Redcliffe Parade)	—	—
10. Continuation after-care provision, farm colonies, etc.	—	—
Total	192	381

Provision is included under B.3 for the somewhat rare cases in children of school age, 2 per cent. of whom are apt to develop acute pulmonary phthisis, indicating either an unfavourable variation from the mean resistance, or a mean resistance overbalanced by excessive dosage.

APPENDIX A.

TABLE A. TUBERCULOSIS IN RELATION TO AGE.

(In a community having the tubercle bacillus ever present.)

Morbidity (sickness).	Nature of affection at different ages.	Fatality (deaths).
The new-born infant is practically always free from tuberculosis.	During the first year of life the membranes of the brain and lining membrane of the abdomen are largely affected.	*Infancy.* In the first year of life tuberculosis is very fatal, especially from 6th to 12th month. About 80 per cent. die of those attacked.
During the first year of life about 15 per cent.	During the first two years of life acute miliary tuberculosis (a generalised and rapidly fatal form) and tuberculosis of bones, joints, and glands are common.	*Childhood.* The school ages (period 5–15) is the period when deaths from tuberculosis are least frequent, though "infection" of some sort is most frequent.
During the first five years about 50 per cent. (Are infected in some form.)	Between the ages of 2 and 10 the milder forms of bone, joint, and gland tuberculosis are mostly found. At these ages chronic pulmonary tuberculosis (phthisis or consumption) is very rare.	*Adolescence, Middle Life, and Old Age.* After the 15th year the mortality from tuberculosis, chiefly "consumption" increases, rapidly at first, afterwards more slowly. The maximum mortality occurs between 35 and 55, then falling slowly.[1]
By the age of 14 about 80 per cent.		
After 30 practically everyone has been infected in some form, once at least.	After the age of 10 "phthisis" begins to prevail, and after 15 becomes the chief form of disease.	

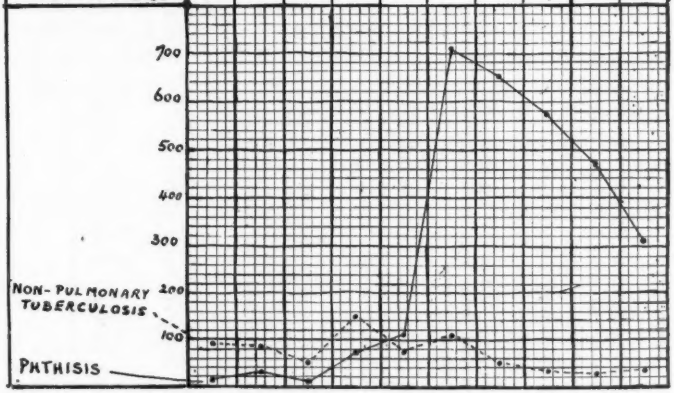
[1] Brownlee differentiates three types of phthisis ("consumption"):—

1. The young adult type—commonest age at death, 20–25.
2. The middle age type " " " 45–51 (in males).
3. The old age type " " " 55–65.

APPENDIX B.

This chart shows in graphic form the deaths, classified by ages, from pulmonary phthisis (consumption) and from other forms of tuberculosis, for the seven years 1913 to 1919 inclusive, in the city of Bristol. The special prevalence of the "young adult" type at present in the city is clearly indicated.

AGES.	0-1	1-2	2-3	3-10	10-15	15-25	25-35	35-45	45-55	55+
PHTHISIS.	19	23	17	72	110	706	656	576	469	317
NON-PULMONARY TUBERCULOSIS.	93	82	51	156	75	101	51	39	26	35



APPENDIX C

TABLE SHOWING CAUSATION-RATIO OF BOVINE TO HUMAN TUBERCULOSIS (COBBETT).

	Human.	*Bovine.*
Pulmonary tuberculosis.	Practically always.	1.7 per cent. (Griffiths).
Tuberculous meningitis.	82 per cent.	18 per cent.
General tuberculosis (without meningitis).	84 per cent.	16 per cent.
Primary abdominal tuberculous affection.	49 per cent.	51 per cent. (none amongst adults).
Tuberculosis of bronchial glands.	In the great majority of cases human.	—
Tuberculosis of cervical glands.	—	Under 16 years of age 55.5 per cent. for England, 71.4 per cent. for Scotland.
Tuberculosis of bones and joints.	In most countries largely due to tubercle bacilli of human origin.	Edinburgh and neighbourhood appear to form an exception.

NOTES.

In Edinburgh tuberculosis of bovine origin is apparently particularly rife. Comparing Edinburgh with Vienna, McNeill found the incidence of *tuberculosis in children up to* 4 *years* higher in Edinburgh, which is suggestive of milk infection, but the mortality from *pulmonary phthisis* in Vienna is three times as high as that for Edinburgh.

The human and bovine type of bacillus are probably varieties of one species adapted to different environment, but this differentiation is by no means absolute. Generally speaking, the bovine type is less virulent to man than the human type. But although the bovine type is extremely rare in the chronic adult pulmonary phthisis (consumption) of man, it is relatively common in glandular or acute infections in children. At the same time Calmette points out that tuberculosis is very common in children in countries where bovine tuberculosis does not exist, and where children are never brought up on cows' milk.

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Reviews of Books.

Bibliography of William Henry Welch, M.D., LL.D. Prepared by WALTER C. BURKET, M.D. Pp. 47. Baltimore: The Johns Hopkins Press. 1917.—As a tribute to the scholarship and public services of Dr. Welch of the Johns Hopkins University this bibliography of his writings has been published separately, so that all may know where the writings were originally published and their chronological order. The wide range of topics covered in these writings conveys faintly but unmistakably the learning and industry of their distinguished author.

Child Welfare. By J. SIM WALLACE, D.Sc., M.D., L.D.S. Pp. x., 102. London: Baillière, Tindall & Cox. 1919. Price 5s. net.—A most interesting book and well worth reading by all interested in this most important subject. The importance of the saliva for oral hygiene and prevention of dental caries is well indicated, as well as the dietary that would leave the mouth in a state of physiological cleanliness after meals. No allusion is made to the possible action, as an antiseptic, of the sulphocyanide of potassium in the saliva. Dental caries and diseases of the mouth would be enormously reduced if the instructions in the book were carried out.

Practical Guide to the Diseases of the Throat, Nose, and Ear. By WM. LAMB, M.D., C.M. Edin. Pp. xi., 372. London: Baillière, Tindall & Cox. Price 8s. 6d. net.—The author has set out to provide in some 350 pages a guide to meet the needs of senior students and junior practitioners. The difficulties facing the author of such a work is to know how much to include and the success of the present volume may be gauged by the fact that it is the fourth edition which is now under review. It will be found eminently suitable to students while undergoing practical instruction in these special departments. The author has perhaps erred in the direction of a too detailed description of some operations, thus sacrificing space which could have been more usefully employed for the detail of signs and symptoms.

The operation as described for removal of the tonsils is rather difficult to follow, but as it is impossible to become proficient in this operation without considerable practice this is not of great importance. The formulæ at the end are well selected, and will probably be found one of the most valuable portions of a generally excellent work.

Diseases of the Ear in School Children. By JAMES KERR LOVE, M.D. Pp. viii., 94. Bristol: John Wright & Sons Ltd. Price 5s. 6d. net.—The seeds of deafness in the adult are sown in childhood, and progress in the prevention of deafness in the future can only be obtained by attention to the child. The author's object in producing this work has been to emphasise this cardinal fact, and to show what excellent results can be produced by the thorough and skilled treatment of aural disease in childhood. He has been in the fortunate if not unique position of having charge of a large group of clinics in Glasgow devoted entirely to the aural treatment of cases drawn from some 130,000 school children. Provision is made for continuous treatment, where necessary, by a staff of nurses, but where operative treatment is necessary the cases are referred to the nearest general or special hospital. As a result of this experience he has come to the very important conclusion that "chronic middle-ear suppuration is during the school period a disease which is very amenable to treatment if the latter be conducted continuously by a competent nurse." The effects of syphilis and hereditary deafness are fully considered.

No one reading this work can fail to be convinced of the essential importance of the specialist treatment of ear diseases in school children. It should be carefully read by all those who have any responsibility for the medical care of school children, and if as a result other centres be induced to follow the lead of Glasgow the author will have earned a debt of gratitude from future generations.

Orthopædic Effects of Gunshot Wounds. By S. W. DAW. Pp. xi., 242. London: Henry Frowde, Hodder & Stoughton. Price 7s. 6d. net.—This little book of the Oxford War Series is of the utmost value, and is published at a most opportune moment. It presents the reader with a concise summary of the principles and practice of orthopædic surgery as evolved at the leading Special Military Surgical Hospitals. Now that such a large proportion of medical men are in constant contact with disabled soldiers, it is incumbent on all to discover the means which have proved to be the most efficient in restoring wounded men and refitting them for the ordinary duties of civil life. The introductory notes are especially valuable, and should be impressed on every Medical Officer working in the Ministry of Pensions. They are the Ten Commandments of the orthopædic surgeon, and the greatest of these is established in the words, "Aim at restoring function, not anatomical structure."

The author takes us through the various common injuries of the upper limb, trunk, and lower limb. This is followed by the consideration of nerve lesions. This section might be improved by better diagrams. Finally, we have a most valuable

chapter on "Functional Disabilities" by Dr. Cuthbert Morton.

While the book as a whole is extremely valuable, it is impossible not to feel a certain amount of regret that other well-known and proved methods of treatment have not been referred to. Verrall's excellent splints for pronation and supination and his finger flexion splint deserve a place in this work. A few paragraphs might with advantage have been devoted to the details of modern plaster of Paris work and to the preparation of celluloid splints. The book is well written, and deserves wide circulation amongst both advanced students and practitioners.

Shell-shock and its Lessons. By G. ELLIOTT SMITH, M.D., F.R.S., and T. H. PEAR, M.A., B.Sc. Pp. xv., 135. Manchester: The University Press. 1919. Cheap Edition. Price 1s. 6d. net.—This is a cheap impression of the second edition of a most interesting book, which was first published in 1917. The authors are the Professor of Anatomy and the Lecturer in Experimental Psychology in the University of Manchester. The whole volume presents so compact and well-ordered a discussion of the subject that it is difficult to detect two minds and two pens at work. It is not, as the title might imply, merely devoted to the symptomatology and treatment of soldiers who in the recent war proved unequal to the mental stress and strain of battle. The interest it evokes is wider and longer lasting. Using as a text the now familiar phenomena of the "War Neuroses," the authors plead temperately but very forcibly for more enlightened methods of dealing with the early manifestations of psychical disturbance. Their conclusion illustrates the object with which the book has been written: "It is our bounden duty as a nation to take measures such as most civilised countries have adopted some time ago. . . . There should be hospitals to which patients in the early stages of mental disturbance can go, without any legal formalities, and receive proper treatment from physicians competent to diagnose their troubles and to give them appropriate advice." We can only add that it is a consummation devoutly to be wished.

Map Showing Distribution in England and Wales of the Anopheline Mosquitoes. By WILLIAM D. LANG, M.A. Pp. 63. London: British Museum (Nat. Hist.). 1918. Price 2s. 6d. net.—This pamphlet deals with the present state of our knowledge regarding the distribution of the three species of anopheles which have been found in England and Wales. The three species are *A. Maculipennis*, *A. Bifurcatus*, and *A. Plumbeus*, of which the first two are proved malaria carriers. The map is valuable in that it gives an easy means of reference, but as the compiler points out it shows chiefly where anopheles have been most sought for. There are many blank places on the map which should stimulate collectors to fill them up. The pamphlet

includes clear information how to distinguish anopheles from other insects and the one species of anopheles from another and what are their favourite breeding places.

It would have been interesting to have marked on the map places where malarial infection has been actually transmitted in the last four years by returned soldiers to persons who have not been abroad. It is also important to know the optimum temperature for the development of malaria in these British species of anopheles, so that we might know during which months there is a possibility of fresh cases arising. Anyone who wishes to add fresh rings to this map should have no difficulty in doing so, as the Bristol area does not seem to have received much attention.

The New Physiology. By J. S. HALDANE, M.D., LL.D., F.R.S., Pp. vii., 156. London: Charles Griffin & Co. Ltd. 1919.—This is a volume of addresses, the third of which gives its title to the collection. Running through them all, and variously illustrated by Dr. Haldane's great knowledge and practical physiological experience, is his well-known metaphysical conception of the place of biology in relation to the other sciences. From this point of view the last essay, "Are Physical, Biological and Psychological Categories Irreducible?" is perhaps the most interesting. Its concluding paragraph sums up, as far as it is possible to do so, the author's position: "From the point of view of each individual science, there is a conflict of categories or fundamental hypotheses with those of other sciences; but from the wider standpoint of philosophy these categories are only provisional working hypotheses. . . . We must regard categories as only forms which the riches of this spiritual world pass through in the course of their ever fuller manifestation."

The peculiar value of Dr. Haldane's contributions to the philosophy of living matter lies of course in his personal researches into physiological processes. His method is not to pick out such recorded experiments and observations of others as may support his own philosophical position, but rather from his own experimental results to construct an accordant philosophy.

To medical men the address on the relation of physiology to medicine will naturally be of especial interest. Here, too, the author's terse and pithy style is perhaps at its best. Discussing the teaching of anatomy, he remarks: "Human anatomy behaves as if she had sold her scientific birthright for a sorry mess of 'systematic' pottage." Again, on pathology: "To many medical men the pathologist is a sinister figure which stalks behind the chaplain and in front of the undertaker." And on practical medicine: "It is 'with brains, sir,' that the physician mixes his prescriptions and the surgeon guides his knife."

Dr. Haldane strongly supports the establishment of clinical laboratories under a trained and paid assistant, to carry out research work under the direction of the physicians and surgeons of hospital staffs. The assistant should be in touch with the main University laboratories, and able to obtain assistance and information from this source. He also is in favour of whole-time professorships of medicine and surgery.

It is impossible in a short review to do justice to the varied interests of Dr. Haldane's book, but we trust that we have said enough to stimulate all who take their profession seriously to get the book and read it, not once nor twice; to work out for themselves the many trains of thought which it suggests, and to consider carefully and critically the fundamental principles on which it is based.

J. M. F.-B.

The Sympathetic Nervous System in Disease. By W. LANGDON BROWN, M.A., M.D. Cantab., F.R.C.P. Lond. Henry Froude, Oxford Univ. Press. London: Hodder & Stoughton Ltd., Warwick Square, E.C. Price 10s. 6d. net.—This work is an embellished reproduction of the Croonian Lectures delivered by Dr. Langdon Brown in 1918, and deals especially with the influence of the sympathetic in such conditions as diabetes insipidus, glycosuria, disordered gastric digestion, and diseases of the circulatory system.

As an introduction the author has succeeded in giving a very lucid anatomical and physiological description of the sympathetic and parasympathetic systems, containing much of clinical interest from both a medical and surgical point of view.

The views expressed concerning the functions of the endocrine glands are based on the fact that the adrenals, the thyroid, and the pituitary are each stimulated by the sympathetic, and are all capable of lowering the carbohydrate tolerance; and the whole question of sugar metabolism receives very full and careful treatment, while the importance of exact clinical observations in reference to hyperglycæmia and glycosuria is illustrated by many interesting cases observed by the author.

We would particularly commend to the notice of surgeons Chapter iv., with its explanations of symptoms occurring in cases of duodenal ulcer with pancreatic adhesions, appendicitis, and of atonic dilatation of the stomach with hyperchlorhydria.

Although attributing enormous importance to the functions of the sympathetic, Dr. Langdon Brown does not hesitate to dethrone the vasomotor system, and therefore the sympathetic, from the autocratic control of the circulation hitherto assigned to it in physiology and pathology; and in referring to shock, he maintains that this condition occurs not through paralysis of but in spite of the action of the vasomotor system.

Editorial Notes.

The Voluntary Hospitals as a Public Trust.

THE financial crisis that has overtaken the voluntary hospitals may be the most obvious of the difficulties that those who are responsible for their management have to face, yet it is only one of the many problems calling for solution—problems of profound national concern, and demanding deep thinking.

It may be useful to touch on the main questions at issue, and in doing so to emphasise one essential consideration that should dominate all our constructive plans for re-establishing our hospital system on a sound basis, viz. that the voluntary hospitals were built, equipped, and largely endowed by private philanthropy in co-partnership with the medical staffs for the benefit of necessitous patients requiring medical assistance such as the hospitals afford, and for whom no such provision was made by the State or any other public body.

These gifts in kind, together with free medical service for the sick poor not otherwise provided for, constitute a public trust, and the managers of the various hospitals are guardians of that trust.

Now it might appear a relatively simple solution of the whole matter if the hospitals maintain as many beds as their resources allow for those patients who can only afford small contributions towards their maintenance and those who must be admitted free as heretofore, and then fill their remaining beds with patients who can pay the entire cost of maintenance, taking precautions to safeguard their funds, to which the most necessitous have the greatest claim, from being encroached on by those who are better off.

It is, however, to the credit of our voluntary hospital system that the work has been so well carried out and developed that they have become not only the centres for scientific research and education and the great training

schools for the medical and nursing professions, but have so developed their resources that the most costly and best equipped nursing homes in some respects fall short of hospitals for patients requiring special treatment.

Briefly, then, the crisis is due to three main factors :—

1. The increasing appreciation of hospitals for treatment by an ever widening section of the community.
2. The increased cost of maintenance, and not the " cost of living " alone, but the cost of providing all the scientific resources that have become an essential feature in every well-equipped hospital.
3. The inability of the charitable public to provide the whole of the funds to meet these heavy and increasing costs.

Realising as we must that the patients who wish to go to hospitals, and for whom an up-to-date hospital service is practically an urgent necessity, are no longer the necessitous poor only, we may consider them under four heads :—

(*a*) Necessitous persons.

(*b*) Persons of only moderate means who can contribute to the cost of maintenance *but cannot afford more.*

(*c*) Patients who are provided for by the State or other public body or by the funds of a " Society."

(*d*) Persons of comfortable means, able to pay both the hospital charges and the fees of the medical attendant, but preferring to have treatment in a hospital rather than in a nursing home or in their own house.

Now the two first groups may be taken to comprise patients for whom the hospitals were built and established, and who have therefore a vested interest therein. To these the honorary medical staffs accord their services free.

The two latter categories comprise those for whom it may, or may not, be expedient on various grounds to open the

voluntary hospital doors. Is it not possible to provide for such on special conditions, so that they shall not encroach on the accommodation provided and required for the two first groups? Obviously these two groups (*c*) and (*d*) are patients who are in no sense entitled to the gifts of the private philanthropist or to the honorary services of the medical staff. Public bodies have provided separate institutions for cases of lunacy and infectious disease because they are a danger to the community, and if public services provide for other categories, *e.g.* cases under the Pensions Ministry, the charges for medical services must, of course, be defrayed by the State or other public body. We must not confuse such payments by the State with State aid—instead of the State aiding the hospital, the hospital would aid the State, and must be repaid its outlay on State work. Moreover the patients who are not necessitous must not be allowed to encroach on the accommodation required by those who are.

No regulations by committees or differentiation of the patients into those who can and those who ought not to contribute can be effective without the assistance of trained almoners, otherwise, however worthy of consideration, the really poor patient will soon be squeezed out by the relatively well-to-do.

It would appear essential that the accounts of hospitals should be kept so as to differentiate between those who, on the one hand, pay for themselves or who are paid for by public bodies, and therefore do not involve the hospital in any cost whatever, and those who, on the other hand, are provided for by private philanthropy.

* * * * *

At a recent meeting of the Bristol Pensions Committee for the purpose of urging on the Ministry of Pensions the desirability of making provision for the hospital treatment

in Bristol of ex-service men who belong to this city Alderman Sheppard, who presided, suggested the possibility of co-operation between the voluntary hospitals and the Ministry, and said that the various institutions could find the accommodation and the Government must be prepared to pay the whole cost of the treatment required, including payment to the honorary staff. There is a very strong feeling that Bristol ex-service men whose conditions require hospital treatment should no longer be sent away from their homes to neighbouring cities; but it is certain that the funds of the civil hospitals, being unequal to meet the costs of poor civil patients, should not bear any part of the cost of patients for whom the Ministry is pledged to provide. This illustrates only one of the many categories of patients who may be considered as suitable for our hospitals, but for whom special conditions must be clearly laid down if the voluntary hospitals as such are to continue to exist and to carry on their splendid services to the commonwealth.

* * * * *

The Poor Law Infirmaries are, doubtless, destined to play an all-important part in the near future in meeting the national shortage of hospital service. Immense possibilities lie in this direction. Already the Bristol Guardians have made a good start in developing their work and resources. We propose to discuss this question in a subsequent issue.

* * * * *

An Almoner Department for the Bristol Voluntary Hospitals.

One of the most urgent and crying needs of the day in connection with the Bristol voluntary hospitals is the institution of a properly-equipped Almoner Department, common to all the hospitals. It would prevent the philanthropic subscriber feeling that perchance his self-denial is misplaced and that his contributions

are filched by patients who can quite well afford to provide for their own needs.

An Almoner requires special training in work which is highly responsible, and calls for tact, knowledge of the work, and organising capacity, and when, as in Bristol, there are several hospitals, it is essential that the Almoner's Department of each should be working in collaboration under one head, if reduplication and waste of money and effort is to be avoided. Furthermore, the department should ensure the equal collaboration of the lay committees and the honorary medical staffs of the various institutions. The work of such a department is by no means confined to sifting out patients whose financial status renders them improper persons for treatment in a voluntary hospital, for the inquiry reveals and provides for many cases where there is a call for sympathy and help outside mere treatment. The heads of the department would be cognisant of all the manifold charitable organisations in and around the city, and would constitute an invaluable source of information to many a poor patient, and to many who want to get into touch with those who really need help.

Such a department demands one or more specially-trained and paid heads, clerical assistance, and a number of co-workers. It would save money, economise effort, and give confidence to the private donor and the medical staffs. It seems extraordinary that Bristol has hitherto failed to institute such a department ; but now that patients who can afford to pay even the full cost of maintenance, and now also that those for whom the " public services " provide, are to be considered proper cases for hospitals, such a department is more than ever necessary for the safe-guarding and proper organisation of medical charity.

The Library of the Bristol Medico-Chirurgical Society.

The Library is now open from 9 a.m. to 7 p.m. except on Saturday, when it closes at 1 p.m.

December 1st, 1920.

The following donations have been received since the publication of the list in September.

The American Laryngological, Rhinological and Otological Society (1)	1	volume.
Dr. J. R. Kay-Mouat (2)	4	volumes.
Dr. Arthur B. Prowse (3)	28	,,
Dr. J. E. Shaw (4)	1	volume.
Dr. J. O. Symes (5)	1	,,
Mr. J. Taylor (6)	100	volumes.
J. Wright & Sons (7)	1	volume.

Unbound periodicals and reports have been received from Mr. Hey Groves, Mr. L. M. Griffiths, and the Medical Research Council.

THE ONE HUNDRED AND SECOND LIST OF BOOKS.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Bardswell, N. ..	*Handbook for Tuberculosis Workers*		1920
Bateman, T. ..	*Delineations of Cutaneous Disease*	(3)	1828
Beatty, J.	*Method of Enzyme Action*	(2)	1917
Bowlby, A. L. ..	*Elementary Statistics*	(2)	1910
Bradby, M. K. ..	*The Logic of the Unconscious Mind*		1920
Bradley, S. M. ..	*Manual of Comparative Anatomy* (6)	3rd Ed.	1875
Buckmaster and H. R. B. Hickman, G. A.	*Course of Practical Physiology*		1920

Carter, A. H. .. *Practical Medicine* (Ed. by A. G. Gibson) 11th Ed. 1920
Cope, Z. .. .. *Surgical Aspects of Dysentery* 1920
Cowper, W. .. *The Anatomy of Humane Bodies* .. .. (5) 1698
Cramer, W. .. *Practical Chemical Physiology* .. .. 4th Ed. 1920
Cretin, J. .. .. *Lectures on Hygiene* .. .. (3) 1911
Fincham, H. W. *The Order of the Hospital of St. John of Jerusalem* .. .. (6) [1915]
Fisher, T. .. .. *The Heart and Sudden Death* .. .. .. (6) 1908
Fortescue-Brickdale, J. M. *Pharmacology and Medical Treatment for Nurses* 1920
Fothergill, J. M. .. *Diseases of the Heart* (6) .. .. .. 2nd Ed. 1879
„ .. *Chronic Bronchitis* .. .. (6) 1882
Gallavardin, L. .. *La Tension artérielle en clinique* (7) 2me Ed. 1920
Garrod, A. B. .. *Materia Medica* (3) .. .. 8th Ed. 1880
Groves, E. W. H. *Synopsis of Surgery* .. .. 5th Ed. 1920
Hickman, G. A. Buckmaster and H. R. B. *Course of Practical Physiology* 1920
von Hoen, Ritter .. *Strategical and Tactical Employment of the Medical Service* (Trans. by W. G. Macpherson) (2) 1909
Hurst, A. F. .. .. *Psychology of the Special Senses* 1920
Ibbotson, W. .. *Atlas of the Sensory Cutaneous Nerves* .. .. [1920]
Jones, H. L. .. *Medical Electricity* (Ed. by L. W. Bathurst) 6th Ed. 1920
Lane, J. R. .. .. *Lectures on Syphilis* (6) .. .. .. 2nd Ed. 1881
Laumonier, J. .. *New Methods of Treatment* (Trans. and Ed. by H. W. Syers) .. .. (6) 1904
McCrae, W. Osler and T. *Principles and Practice of Medicine* (4) 9th Ed 1920
McNamara, C. .. *Asiatic Cholera* .. .. (3) 1870
Mann, M. .. .. *Text-book of Tracheo-Bronchoscopy* (Trans. by A. R. Moodie) 1920
Matthew, C. H. L. Rixon and D. *Anxiety Hysteria* 1920
Osler and T. McCrae, W. *Principles and Practice of Medicine* (4) 9th Ed. 1920
Pereira, J. .. .. *Selecta è Prescriptis* .. .. .. (3) 14th Ed. 1864
Pharmacopœia of Queen's Hospital for Children .. .. .. 6th Ed. 1920
Poore, G. V. .. .. *Electricity in Medicine and Surgery* .. .. (6) 1876
Rixon and D. Matthew, C. H. L. *Anxiety Hysteria* 1920
Ross, J. .. .. *Aphasia* .. .. (3) 1887
Souttar and E. W. Twining, H. S. *Injuries of the Peripheral Nerves* 1920
Spencer, H. R. .. *Tumours Complicating Pregnancy etc.* 1920
Sydenham, T. .. *Works* (Corrected by J. Pechy) (6) .. 11th Ed. 1740
Tibbles, W. .. .. *The Theory of Ions* .. .. (2) 1908
Twining, H. S. Souttar and E. W. *Injuries to the Peripheral Nerves* 1920
Wilson, E. .. .. *Diseases of the Skin* (3) .. .. .. 4th Ed. 1857
Wood, J. .. .. *On Rupture* .. .. (6) 1863

TRANSACTIONS, REPORTS, JOURNALS, &c.

American Laryngological, Rhinological and Otological Society, Transactions of the.. .. .. (1) 1919
American Surgical Association, Transactions of the Vol. XXXVII. 1919
Johns Hopkins Hospital Reports, The .. .. Vol. XIX. 1920
Journal of Physical Therapeutics (6) .. .. Vols. II., III. 1901–02
Medical Electrology and Radiology (6) .. Vols. IV.—VI. 1903–05
Smithsonian Report for 1917 1919

MEETINGS OF SOCIETIES.

Bristol Medico-Chirurgical Society.

Annual Meeting, October 13th, 1920.

After a vote of thanks to the retiring President, Dr. I. Walker Hall, had been enthusiastically carried, Dr. L. E. V. Every-Clayton took the chair and gave an introductory address on **Medicine and Surgery** (*see* p. 193). Later a cordial vote of thanks was given to Dr. Every-Clayton for the able and nteresting address he had delivered.

The Secretary, Mr. A. J. Wright, and the Editorial Secretary, read their Annual Reports. The Honorary Librarian, Mr. C. K. Rudge, read the Library Report, which was as follows :—

It is well from time to time to take stock of our Library and to note its growth and the extent to which its efficiency has been maintained. The ten years from 1910 to 1920 have been selected as a suitable period to pass in review. During that period 2,646 volumes have been added to the Library of the Medico-Chirurgical Society, and 884 volumes to the University Library, making the total accessions 3,530. The majority of these are new books or bound periodicals. Members will note that this decade embraces the five years of the Great War. The Library Committee may be congratulated on their success in adding so large a number of books to the Library, and at so small a cost, on an average that of £25 a year, including binding and a few other expenses. During this period 5,689 volumes have been borrowed. The services of Mr. Farr, the Clerk, are much appreciated by all those who frequent the Library.

The Library of the Medico-Chirurgical Society now contains 14,885 bound volumes. During the year 231 volumes have been added. These have been received from the following sources :—

Sent for Review	74	volumes.
By Exchange	35	,,
Presented	108	,,
Periodicals	14	,,

During the year 50 volumes of the more important periodicals have been bound, but owing to the high cost of binding there remain 250 volumes unbound.

The Library is in regular receipt of 102 periodicals; 5 new journals have been added to the exchange list, and 9 resumed since the war.

For the convenience of Members the hours during which the Library remains open have been extended since May to 7 p.m.

The great need of money for the maintenance and development of the Library was emphasised.

The following are the officers of the Society for the Session 1920–1921: President—L. E. V. Every-Clayton, M.D. Lond.; President-Elect—Cyril H. Walker, M.B. Cantab. Committee (*ex officio*)—I. Walker Hall, M.D. Vict. (retiring President); P. Watson-Williams, M.D. Lond. (Editor of *Journal*); C. K. Rudge, M.R.C.S. (Hon. Librarian); J. M. Fortescue-Brickdale, M.D. Oxon. (Editorial Secretary); W. S. V. Stock, M.B. Lond. (Hon. Secretary). *Elected*—R. Shingleton-Smith, M.D. Lond.; R. G. P. Lansdown, M.D.; J. Lacy Firth, M.S. Lond.; J. O. Symes, M.D. Lond.; D. C. Rayner, F.R.C.S.; T. Carwardine, M.S. Lond.; Forbes Fraser, F.R.C.S.; J. A. Nixon, C.M.G., M.D. Library Committee—C. K. Rudge, M.R.C.S.; W. A. Smith, M.D.; George Parker, M.D.

INCOME AND EXPENDITURE ACCOUNT OF THE BRISTOL MEDICO-CHIRURGICAL SOCIETY, SESSION 1919–1920.

Receipts.	£	s.	d.
Balance from 1918–1919	187	2	2
Members' Subscriptions	268	3	0
Interest on Deposit ..	2	19	9
	£458	4	11

Expenditure.	£	s.	d.
University of Bristol ..	20	0	0
Honoraria—			
Library Clerk	13	0	0
University Marshal ..	2	10	0
To *Journal*	129	7	6
Audit Fee	1	1	0
Miscellaneous:	£	s.	d.
Fire Insurance	1	4	0
Postage ..	3	0	0
Expenses Clinical Meeting ..	1	15	0
Printing and Stationery ..	12	14	9
Lantern ..	0	10	6
		19	4	3
Balance in Bank	166	15	8
Deposit A/c ..	106	6	6
		273	2	2
	£458	4	11

November 10th, 1920.

L. E. V. EVERY-CLAYTON, M.D., President, in the Chair.

Members of the University of Bristol Speleological Society gave an account of the work undertaken during the past year, including :—

1. An account of the Palæolithic Remains from "The Cave," Burrington, by Prof. E. Fawcett.

2. An account of Early British Remains from "The Keltic Cavern," by Mr. L. S. Palmer, M.Sc.

PROFESSOR FAWCETT exhibited and described the more important objects found in the cave commonly known as Aveline's Hole, and gave a short account of the history of the cave since it became known as a bone-cave. The cave is situated near Burrington in the Mendips.

The objects found included parts of the human skeleton, flint weapons and implements, a harpoon, and about three dozen perforated shells, including an oyster shell likewise perforated. In addition to these there were bones of many animals, including the left half of the mandible and part of the maxilla, together with remains of the antlers of an enormous extinct red-deer ; there were two mandibles of the brown bear, part of the skull of a large cat (? wild cat), and several mandibles of the arctic lemming.

Of the human remains one calvaria was practically complete, and had articulated with it the right malar bone. This skull was of the long-headed, *i.e.* dolichocephalic type, its breadth index being 70.3. The height index was practically 74. The general characters of the skull point to its being of the female sex, and from the fact that the sagittal suture was synostosed the age may be taken as somewhat over 50, if skulls of this period behave as modern ones do. This skull was found partly embedded in and partly below a thick stratum of stalagmite, perhaps eight inches in thickness.

One of the most striking features exhibited by the cranium was the marked festooning of the supratemporal crest, which, as it crossed the coronal suture shot up suddenly at an angle of 30 degrees before taking a backward course. Another calvaria, which, though incomplete anteriorly, appeared to be brachycephalic, was of the greatest interest because it indicated the presence of two races inhabiting the cave at the same time, both skulls having been found under and in the same stratum of stalagmite, but on opposite sides of the cave.

The implements found were ordinary flakes together with many micro-liths. The association of microliths with dolichoecphalic and brachycephalic skulls is of great interest, occurring,

so far as is known, only elsewhere at Ofnet, near Munich, and is characteristic of the Azilian period, *i.e.* at the very end of the Palæolithic period or even the transition between Palæolithic and Neolithic. The harpoon was of great beauty, made of red-deer antler and closely allied to the Magdalenian horn, but flat in the shaft, not cylindrical. No incised bones and paintings were seen, nor were such to be expected at this period. Amongst the limb-bones of man a tibia showed marked platycnemia, *i.e.* it was sabre-like in horizontal section, and the facet on the head for the external condyle of the femur was markedly convex from before backwards.

Large numbers of fragments of human bones were found, but so broken up that it was impossible to piece them together.

Of the mammalian bones the most strikingly interesting was the half-mandible of the red-deer, whose teeth showed a well-marked cuspidate cingulum, and as evidence of the climate of the time the presence of mandibles of the arctic lemming speak with some certainty.

Mr. L. S. PALMER, M.Sc., gave an account of **"The Keltic Cavern"** which was discovered in September, 1919, by the University of Bristol Speleological Society. Since that date the cave has been surveyed and the floor excavated. This work, which has been in progress for a year, has led to the interesting conclusion that at some time between 400 B.C. and the present era the cave was inhabited for a short time by a tribe of early British settlers, known as the Brythons, who invaded this country from the shores of northern France. These same people built Glastonbury Lake Village, and are known to have inhabited Wookey Hole, Worlebury Camp, and some hut circles on Brean Down, all of which places are within a few miles of the cave in question.

A unique feature of this Mendip cave—which has been aptly named "The Keltic Cavern"—is the fact that no evidence of earlier occupation has resulted from an investigation of the deeper strata of the floor, whilst there is no trace of Roman occupation in the upper layers. The evidence for the Brythonic occupation was found in the form of pottery, iron implements, bronze ornaments, worked bone and stone and many bones of domestic and wild animals, all typical of the late Keltic period.

All these finds were deposited either on the surface of the cave floor or in a thin black band of mud which constituted the uppermost layer. In most cases a thin coating of stalagmite covered the superficial material.

The most interesting finds are bronze hubs, bands of chariot wheels, bronze bracelets and finger rings, iron slave shackles, an iron key, portion of a currency bar, etc., whilst cheek-pieces, spindle-whorls and a stone grinder are amongst other examples

of worked material. The design and technique of the pottery is comparable with that found in most late Keltic settlements.

Only three human bones were discovered, one of which possibly shows anatomical features comparable with the human bones from the Brean Down hut circles.

There is considerable evidence to show that the cave was occupied under abnormal circumstances, and from other associated facts it has been concluded that the cavern was used by the Brythons as a temporary refuge, possibly at some period during the first half of the Early Iron Age.

Votes of thanks were passed to Professor Fawcett and Mr. Palmer, with cordial expressions of appreciation of the valuable work being carried on by the Speleological Society. The Society was congratulated on the possession of a " research laboratory " close at hand of such dimensions, so rich in remains as the limestone hills encircling Bristol.

December 8th, 1920.

L. E. V. EVERY-CLAYTON, M.D., in the Chair.

Dr. CECIL WILLIAMS showed (1) a case of **Periodic Jaundice in a child aged 5½ years.** The attacks occur about once a year, and last several months. The present attack began two months ago with deep jaundice. The stools were putty-coloured and contained an excess of bile, the skin was very irritable. The liver is definitely enlarged but the spleen is not. The red corpuscles are 4,500,000 per cmm., the leucocytes 15,000, the small lymphocytes constituting 57 per cent. The Wassermann reaction was negative. The child is beginning to improve.

(2) A case of **Purpura Hæmorrhagica.** The boy, aged 12¾ years, had never been strong since diphtheria at five. The family history was negative. All over the body there were purpuric spots of various sizes. He had well-marked pyorrhœa alveolaris, but a swab from the gums was sterile. Neither spleen nor liver could be felt. The blood film was not abnormal. The coagulation time was 7½ minutes. After a rectal injection of 10 c.c. of anti-streptococcus serum there was a fresh outcrop of spots and sharp abdominal pain. The boy then developed peculiar mental delusions. This was succeeded in a fortnight's time by another crop of spots. 40 c.c. of the mother's serum were then given subcutaneously. Since then the boy had improved and no further spots had been seen. Three weeks after 4 c.c. of the father's serum was injected, and the improvement has been maintained.

Dr. CAREY COOMBS then read a paper on **Persistence of the Ductus Arteriosus,** with notes of four cases, in one of which the diagnosis was confirmed by autopsy. In this case death was due

to an intercurrent endocarditis spreading from the pulmonary artery to the aortic and pulmonary and mitral valve. This had manifested itself in life by a hectic fever, wasting, splenomegaly, petechiæ, and hæmaturia. The ductus was found to be a short wide channel opening from the pulmonary artery at its bifurcation into the origin of the descending aortæ. In all the cases the most striking physical sign was the characteristic bruit heard over the left upper chest and left upper back. It began with the onset of ventricular systole and ran on to the middle of diastole. This was illustrated by a phonocardiographic record from one of the cases. Another fact observed in three of the cases was that this murmur was accompanied by a thrill, the systolic part of which could be felt in the arteries of the neck. Skiagraphy showed the shadow which had been described by Gerhardt extending up from the normal cardiac shadow along the left border of the manubrium, but this was to be regarded as of less diagnostic value than the murmur. Electro-cardiographic and other evidence was brought to show that even in the presumed absence of any pulmonary stenosis this anomaly might be accompanied by a small degree of right ventricular hypertrophy. The absence of cyanosis and of definite polycythæmia, and the relatively favourable character of the prognosis were alluded to. The average age of the four patients when last heard of was 27.

Mr. RENDLE SHORT read a paper on **The Causation of Appendicitis.** He began by quoting figures from the Bristol Royal Infirmary to show that in recent decades there had been a sharp rise in the incidence of the disease. The reality of this rise, which was most apparent in the years 1895–1905, was then examined, and it was shown by reference to the records of the years preceding the rise that there had been no overlooking of the disease. It was also argued from the available facts that in these earlier years the absence of cases of appendicitis could not be ascribed to failure on the part of the family practitioner to send the cases to hospital. The rise in incidence was therefore a real one. The distribution of the disease in the human community was next examined and a number of interesting data adduced in favour of the view that its incidence is lower in communities that live on a relatively simple diet. This view was supported by a further comparison of its occurrence in wild animals in captivity, and the apparent freedom of similar animals when living in a wild state. Having argued that the increase in the disease was due to dietetic changes, Mr. Short proceeded to analyse a large amount of statistical evidence by way of discovering the particular dietetic change that should be held responsible. The fact which showed the closest parallelism to the curve of appendicitis incidence was the increase in the importation of meat. This fact was examined at length and explained not as proving a direct relation

between the amount of meat consumed and the liability to appendicitis, but as suggesting that a diet comparatively rich in meat and therefore comparatively poor in cellulose, did probably pre-dispose to the disease.

A number of members took part in the discussion that followed each of these papers.

South-Western Ophthalmological Society.

The inaugural meeting of this Society was held at the Bristol Eye Hospital on October 22nd, 1920.

The Society consists of more than fifty members. It is hoped that the scope of its proceedings will be of sufficiently wide interest to attract not only oculists but others, especially general practitioners and physicians. The cases shown and the discussions will, so far as is possible, be arranged with this aim in view.

At the inaugural meeting the following officers were elected: President—Mr. F. Richardson Cross (Bristol). Vice-Presidents—Mr. A. C. Roper (Exeter), Mr. R. J. Coulter (Newport). Secretary—Mr. E. H. E. Stack (Bristol). Committee—Mr. A. W. Prichard (Bristol), Mr. H. H. Du Boulay (Weymouth), Mr. J. Burdon-Cooper (Bath), Mr. C. E. S. Flemming (Bradford-on-Avon), Mr. D. Leighton-Davies (Cardiff), Mr. R. Jaques (Plymouth).

At the morning session cases were shown. The members then lunched together and in the afternoon Mr. Roper read a paper on "The Causes of Iritis."

Local Medical Note.

Chesterfield Nursing Home and St. Brenda's Private Hospital.

With a view to extending the present Nursing Home to something near fifty beds the Trustees of the Bristol Nurses' Institute have acquired the entire block. We congratulate Dr. R. G. P. Lansdown, the Chairman, and Mr. Hedley Hill, the Hon. Treasurer, on carrying through this project, the success of which is mainly due to their skilful management and untiring effort.

We offer very hearty wishes for the success of St. Brenda's Private Hospital, which opens on January 24th. The Medical, Surgical and Special Staff form a complete team, each specialising in his own department of practice, who undertake the treatment of the relatively poor at very moderate fixed rates for maintenance and medical attendance. The two houses contain about forty beds, together with an operating theatre, X-ray and pathological installations. Mr. S. V. Stock, F.R.C.S., is at present acting as Registrar, and will furnish every information desired.

Both of these institutions aim at affording as far as possible the advantages of a modern hospital.

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